

H_T = Net heating value of the sample, megajoules per standard cubic meter; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 millimeters of mercury (30 inches of mercury), but the standard temperature for determining the volume corresponding to one mole is 20 °C;

K_1 = 1.740×10^{-7} (parts per million by volume)⁻¹ (gram-mole per standard cubic meter) (megajoules per kilocalories), where the standard temperature for gram mole per standard cubic meter is 20 °C;

n = number of sample components;

D_j = Concentration of sample component j , in parts per million by volume on a wet basis, as measured for organics by Method 18 of 40 CFR part 60, appendix A, or by American Society for Testing and Materials (ASTM) D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106) under the conditions specified in § 63.997(e)(2)(iii)(D)(1) through (3). Hydrogen and carbon monoxide are measured by ASTM D1946–90; and

H_j = Net heat of combustion of sample component j , kilocalories per gram mole at 25 °C and 760 millimeters of mercury (30 inches of mercury).

(iii) The actual exit velocity of a flare shall be determined by dividing the volumetric flow rate (in unit of standard temperature and pressure), as determined by Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, as appropriate, by the unobstructed (free) cross sectional area of the flare tip.

(iv) Flare flame or pilot monitors, as applicable, shall be operated during any flare compliance assessment.

(c) *Flare monitoring requirements.* Where a flare is used, the following monitoring equipment is required: a device (including but not limited to a thermocouple, ultra-violet beam sensor, or infrared sensor) capable of continuously detecting that at least one pilot flame or the flare flame is present. Flare flame monitoring and compliance records shall be kept as specified in § 63.998(a)(1) and reported as specified in § 63.999(a).

[64 FR 34866, June 29, 1999, as amended at 64 FR 63705, Nov. 22, 1999; 67 FR 46277, July 12, 2002]

§ 63.988 Incinerators, boilers, and process heaters.

(a) *Equipment and operating requirements.* (1) Owners or operators using incinerators, boilers, or process heaters to meet a weight-percent emission reduction or parts per million by volume outlet concentration requirement specified in a referencing subpart shall meet the requirements of this section.

(2) Incinerators, boilers, or process heaters used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(3) For boilers and process heaters, the vent stream shall be introduced into the flame zone of the boiler or process heater.

(b) *Performance test requirements.* (1) Except as specified in § 63.997(b), and paragraph (b)(2) of this section, the owner or operator shall conduct an initial performance test of any incinerator, boiler, or process heater used to comply with the provisions of a referencing subpart and this subpart according to the procedures in § 63.997. Performance test records shall be kept as specified in § 63.998(a)(2) and a performance test report shall be submitted as specified in § 63.999(a)(2). As provided in § 63.985(b)(1), a design evaluation may be used as an alternative to the performance test for storage vessels and low throughput transfer rack controls. As provided in § 63.986(b), no performance test is required for equipment leaks.

(2) An owner or operator is not required to conduct a performance test when any of the control devices specified in paragraphs (b)(2)(i) through (iv) of this section are used.

(i) A hazardous waste incinerator for which the owner or operator has been issued a final permit under 40 CFR part 270 and complies with the requirements of 40 CFR part 264, subpart O, or has certified compliance with the interim status requirements of 40 CFR part 265, subpart O;

(ii) A boiler or process heater with a design heat input capacity of 44 megawatts (150 million British thermal units per hour) or greater;

(iii) A boiler or process heater into which the vent stream is introduced

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with the primary fuel or is used as the primary fuel; or

(iv) A boiler or process heater burning hazardous waste for which the owner or operator meets the requirements specified in paragraph (b)(2)(iv)(A) or (B) of this section.

(A) The boiler or process heater has been issued a final permit under 40 CFR part 270 and complies with the requirements of 40 CFR part 266, subpart H; or

(B) The boiler or process heater has certified compliance with the interim status requirements of 40 CFR part 266, subpart H.

(c) *Incinerator, boiler, and process heater monitoring requirements.* Where an incinerator, boiler, or process heater is used, a temperature monitoring device capable of providing a continuous record that meets the provisions specified in paragraph (c)(1), (2), or (3) of this section is required. Any boiler or process heater in which all vent streams are introduced with primary fuel or are used as the primary fuel is exempt from monitoring. Monitoring results shall be recorded as specified in § 63.998(b) and (c), as applicable. General requirements for monitoring and continuous parameter monitoring systems are contained in the referencing subpart and § 3.996.

(1) Where an incinerator other than a catalytic incinerator is used, a temperature monitoring device shall be installed in the fire box or in the ductwork immediately downstream of the fire box in a position before any substantial heat exchange occurs.

(2) Where a catalytic incinerator is used, temperature monitoring devices shall be installed in the gas stream immediately before and after the catalyst bed.

(3) Where a boiler or process heater of less than 44 megawatts (150 million British thermal units per hour) design heat input capacity is used and the regulated vent stream is not introduced as or with the primary fuel, a temperature monitoring device shall be installed in the fire box.

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§ 63.990 Absorbers, condensers, and carbon adsorbers used as control devices.

(a) *Equipment and operating requirements.* (1) Owners or operators using absorbers, condensers, or carbon adsorbers to meet a weight-percent emission reduction or parts per million by volume outlet concentration requirement specified in a referencing subpart shall meet the requirements of this section.

(2) Absorbers, condensers, and carbon adsorbers used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(b) *Performance test requirements.* Except as specified in § 63.997(b), the owner or operator shall conduct an initial performance test of any absorber, condenser, or carbon adsorber used as a control device to comply with the provisions of the referencing subpart and this subpart according to the procedures in § 63.997. Performance test records shall be kept as specified in § 63.998(a)(2) and a performance test report shall be submitted as specified in § 63.999(a)(2). As provided in § 63.985(b)(1), a design evaluation may be used as an alternative to the performance test for storage vessels and low throughput transfer rack controls. As provided in § 63.986(b), no performance test is required to demonstrate compliance for equipment leaks.

(c) *Monitoring requirements.* Where an absorber, condenser, or carbon adsorber is used as a control device, either an organic monitoring device capable of providing a continuous record, or the monitoring devices specified in paragraphs (c)(1) through (3), as applicable, shall be used. Monitoring results shall be recorded as specified in § 63.998(b) and (c), as applicable. General requirements for monitoring and continuous parameter monitoring systems are contained in a referencing subpart and § 63.996.

(1) Where an absorber is used, a scrubbing liquid temperature monitoring device and a specific gravity monitoring device, each capable of providing a continuous record, shall be